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EXAMINER	
SONG, HEE K	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/575,508	STRUYK, DAVID A.	
	Examiner	Art Unit	
	HEE SONG	2433	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 April 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-56* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-56* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 April 2006* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/31/2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This is in response to Application 10/575,508 filed on 4/13/2006 in which claims 1, and 3-56 are presented for examination.

Status of Claims

Claims 1, and 3-56 are pending, of which claims 1, 22, 41 and 54 are in independent form.

Priority

Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yerazunis et al. (US PG-Pub. 2003/0026449 A1) hereinafter Yerazunis, and in further view of Faris (US Patent No. 6,002,518).

1. With respect to claim 1, Yerazunis teaches an apparatus for confidential viewing of a fundamental image utilizing spatial multiplexing image modification (see abstract, Figs. 1 and 2 and claims 1-19; mostly, confidential viewing via multiplexing but could be extended to a confidential viewing via spatial multiplexing, too.), comprising:

(b) a plurality of spatially multiplexed fundamental image components and related masking image components derived from said fundamental image components being displayed on said image display device in association with said display regions and in such arrangement as to render said fundamental image components substantially indecipherable to the naked eye (see abstract, Figs. 1 and 2, paragraphs [0009], [0015]-[0021], [0026], [0045]-[0047]; It's well-known to a person in the art that the display can be constructed as a tiled electronic display having image picture element (pixel) positions defined in association with a pixel image data stored in a memory, as discussed by Matties et al. in US PG-pub. 2005/0078104 A1). It's also well-known to a person in the art that any two images of the same size can be spatially multiplexed in a checker pattern or row-by-row pattern or column-by-column pattern to form a composite image utilizing the tile structure above such that when either of the two images are selected, the defects resulting from the missing tile of pixels are not detectable to a normal eye.; Yerazunis discloses the mask image 102 derived from the fundamental image 101 in Fig. 1 and paragraphs [0016] – [0017] and [0025] – [0028]. The fundamental image and the masking image can be arranged in a alternating column-by-column or row-by-row pattern utilizing the tile structure above. Yerazunis further mentions alternating the fundamental image and the mask image in a frequency

of the display device's refresh rate causing the rapidly displaced frames to merge into a continuous image, the net result being a featureless neutral gray image. That is, the row of tiles of fundamental images is followed by row of tiles of corresponding mask images and the row of tiles of mask images can be followed by row of tiles of corresponding fundamental images in place in two consecutive frames of sequence.);

(d) an image viewing device having polarization means cooperating with said image display device for allowing extraction and viewing only of said fundamental image components from said image display device (see paragraphs [0018]-[0021] and [0046]-[0048], e.g., a properly modulated optical shutter device 140 in Fig. 2).

Even though it's well-known that an image displace is comprised of a plurality of adjacent displace regions (e.g., tiles), the following is not explicitly taught in Yerazunis:

"**(a) an image display device comprising a plurality of adjacent display regions of different polarization states**;

(c) said fundamental image components being representative of a fundamental image and being associated with said display regions having a common state of polarization that is different than the state of polarization of said display regions with which said masking image components are associated" however Faris discloses how two spatially multiplexed images can have two different polarization states in an orthogonal relationship (see abstract, Figs. 1, 2, 2B, 4, 4B, 6, 6B, col. 4, lines 58-65, col. 6, lines 21-63, col. 7, lines 43-55, col. 9, lines 48-63, col. 15, line 20

through col. 16, line 67 and col. 18, line 30 through col. 19, line 33; The left perspective image and the right perspective image can be arranged to be fundamental image and the masking image or inverse image such that each image is associated with a different polarization state from the other image, based on Fig. 1. The polarized viewing glasses can be modified such that both left eye and the right eye can detect one image based on the polarization state of the glasses in synchronization with the polarization state in the viewing device.)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the current invention was made, having the teachings of Yerazunis and Faris before him or her, to modify Yerazunis's scheme for privacy-enhanced displace device by including Faris's scheme for selecting the fundamental image based on the polarization states associated with the fundamental image and the masking image utilizing the a phase-retarding polarizer of the displace device and the viewing device of which the polarization state is in synchronization with a polarization state of the displace device. The suggestion/motivation for doing so would have been to select and view a desired image utilizing viewing glasses with its polarization state in synchronization with that of fundamental image being displayed on the display device such that unauthorized viewers without appropriate viewing glasses won't be able to view the fundamental images.

2. (canceled)

2. With respect to claim 3, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, Yerazunis teaches **wherein at least some of said masking image components are the derived inverse of corresponding said fundamental image components displayed therewith, and the display of said fundamental and masking image components on said image display device generates a combined neutral image that appears substantially featureless to the naked eye** (see discussion in the rejected claim 1).

3. With respect to claim 4, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, Yerazunis teaches **overlay image components displayed in association with said masking image components such that an overlay image appears to the naked eye as being overlaid upon said substantially featureless image** (see Yerazunis, Fig. 2 and paragraph [0032], where the displayed image 261 is a overlay image when viewed without an appropriate optical viewing glasses.)

4. With respect to claim 5, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, the combination of Yerazunis and Faris teaches **wherein the display of said fundamental image components and said masking image components on said image display device are positionally alternated in time** (see discussion in the rejected claim 5; see Faris, col. 18, lines 13-

38 for spatially multiplexing the two types of images (e.g., fundamental image and the inverse/masking image) in a row-by-row, column-by-column, or checker pattern; Per Yerazunis, paragraphs [0015]-[0018], the row of tiles of fundamental images is followed by row of tiles of corresponding mask images and the row of tiles of mask images can be followed by row of tiles of corresponding fundamental images in place in two consecutive frames of sequence.; Assuming that the tile of following or previous neighboring row/column has similar pixel composition, the following/previous neighboring row/column tiles of mask images can be substituted, instead.)

5. With respect to claim 6, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore the combination of Yerzunis and Faris teaches **wherein said fundamental image components are positionally altered in time to associate with separate sets of said display regions having differing polarization states** (see discussion in the rejected claim 5; see Faris, col. 18, lines 13-38 for spatially multiplexing the two types of images (e.g., fundamental image and the inverse/masking image) in a row-by-row, column-by-column, or checker pattern; Per Yerazunis, paragraphs [0015]-[0018], the row of tiles of fundamental images is followed by row of tiles of corresponding mask images and the row of tiles of mask images can be followed by row of tiles of corresponding fundamental images in place in two consecutive frames of sequence.; Assuming that the tile of following or previous neighboring row/column has similar pixel composition, the following/previous neighboring row/column tiles of mask images can be substituted, instead.; see Faris,

col. 15, line 55 through col. 16, line 13 for the two images having two different polarization states in orthogonal relationship.)

6. With respect to claim 7, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore Yerzunis teaches **wherein at least said fundamental image components are time multiplexed with derived inverse image components thereof** (see Yerzunis, paragraph [0009]; Assuming that the tile of following or previous neighboring row/column has similar pixel composition, its row/column tiles of its own mask images can be substituted, instead, in place of the next row/column of tiles of images. In the next frame, the location of fundamental images is fixed but the neighboring row/column can be arranged as described before.; Fi | Ii → I(i+1) | F(i+1) instead of Fi | I(i+1) → Ii | F(i+1)).

7. With respect to claim 8, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore Yerzunis teaches **wherein both said fundamental image components and said masking image components are time multiplexed with derived inverse image components thereof** (see discussion in the rejected claim 7).

8. With respect to claim 9, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore Yerzunis teaches **wherein each of said masking image components is the derived inverse of a corresponding fundamental image component associated with the same said display region** (see discussion in the rejected claim 7).

9. With respect to claim 10, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore the combination of Yerzunis and Faris teaches **wherein said polarization states of said display regions are fixed** (Each display region (e.g., row of tiles) is occupied by fundamental image components, then by masking image components and the polarization states are in orthogonal relationship. For the shake of the polarization states of viewing glasses being dynamic (i.e, changing from 180 degree to 0 degree to 180 degree), the polarization states of display regions can be fixed with one state such that the alternating fundamental and masking images can be associated with different polarization states at each refreshing of image.)

10. With respect to claim 11, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore the combination of Yerzunis and Faris teaches **wherein said polarization states of said display regions are variable** (see the discussion the rejected claim 1; in contrast to the polarization states of viewing

glasses being dynamic (i.e, changing from 180 degree to 0 degree to 180 degree), the polarization states of display regions can be varied such that the alternating fundamental and masking images can be associated with identical polarization states at each refreshing of image.)

11. With respect to claim 12, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore the combination of Yerzunis and Faris teaches **wherein each of said display regions include a variable polarizer capable of altering the state of polarization thereof** (see Yerazunis, paragraphs [0043] – [0048]).

12. With respect to claim 13, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore the combination of Yerzunis and Faris teaches **wherein said variable polarizer is comprised of an electrically-controlled liquid crystal device** (see Yerazunis, paragraph [0020] and the discussion in the rejected claim 12 for the LCD display).

13. With respect to claim 14, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore the combination of Yerzunis and

Faris teaches **wherein said different polarization states of said display regions are generally orthogonal to one another** (see Faris, col. 18, lines 30-67).

14. With respect to claim 15, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, Faris teaches **wherein at least some of said display regions are left-hand circularly polarized and at least some of said display regions are right-hand circularly polarized** (see Faris, Fig. 4 and col. 8, lines 48-63 for LHS and RHS circular polarization states).

15. With respect to claim 16, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, Faris teaches **wherein said display regions with which said fundamental image components are associated are cross-polarized relative to said display regions with which said masking image components are associated** (see discussion in the rejected claim 1 for having micropolarized regions with different polarization states for the two different spatially multiplexed iamges.)

16. With respect to claim 17, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, the combination of Yerazunis and Faris teaches **wherein said image display device is an electronic display**

device comprising a plurality of display pixels and having a periodic display refresh cycle (e.g., refresh rate of 60 Hz, see Yerazunis, paragraph [0035] and [0047]), **and wherein each of said display regions includes at least one of said pixels of said electronic display device** (e.g., rows or columns of tiles as discussed in the rejected claim 1).

17. With respect to claim 18, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, Yerazunis teaches **wherein said electronic display device includes a transparent overlay with designated separate areas of cross-polarized orientations that align with said pixels to form said plurality of differently polarized display regions** (see Yerazunis, Fig. 2 and paragraph [0032], where the displayed image 261 is a overlay image when viewed without an appropriate optical viewing glasses.)

18. With respect to claim 19, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, Yerazunis teaches **wherein said fundamental image components and said masking image components are regenerated upon each said display refresh cycle in association with a separate set of said pixels having a different polarization state than that of the next previous said display cycle of said electronic display device**(see discussion in the rejected claims 1 and 17; e.g., at the refreshing of image, a new image frame is

obtained to compute fundamental image components and its masking image components).

19. With respect to claim 20, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, Yerazunis teaches **wherein said image viewing device is comprised of active polarized eyewear which communicates with said electronic display device to change states of polarization in sync with said display refresh cycle of said electronic display device** (see Yerazunis, paragraphs [0018]-[0021] and paragraph [0048]).

20. With respect to claim 21, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, Yerazunis teaches **wherein said display regions of said electronic display device include a variable polarizing means for altering the state of polarization thereof, and said image viewing device is comprised of active polarized eyewear that communicates with said electronic display device to change states of polarization in sync with changes in the polarization state of said display regions** (see paragraphs [0018]-[0021] and [0044]-[0048]).

21. With respect to claim 22, Yerazunis teaches an apparatus for confidential viewing of a fundamental image utilizing spatial multiplexing image modification, comprising:

(b) means for generating an image on said image display device having a fundamental image component and a corresponding inverse image component spatially arranged in association with said display regions so as to form a combined image that appears substantially featureless to the naked eye (see abstract, Figs. 1 and 2, paragraphs [0009], [0015]-[0021], [0026], [0045]-[0047]; It's well-known to a person in the art that the display can be constructed as a tiled electronic display having image picture element (pixel) positions defined in association with a pixel image data stored in a memory, as discussed by Matties et al. in US PG-pub. 2005/0078104 A1). It's also well-known to a person in the art that any two images of the same size can be spatially multiplexed in a checker pattern or row-by-row pattern or column-by-column pattern to form a composite image utilizing the tile structure above such that when either of the two images are selected, the defects resulting from the missing tile of pixels are not detectable to a normal eye.; Yerazunis discloses the mask image 102 derived from the fundamental image 101 in Fig. 1 and paragraphs [0016] – [0017] and [0025] – [0028]. The fundamental image and the masking image can be arranged in a alternating column-by-column or row-by-row pattern utilizing the tile structure above. Yerazunis further mentions alternating the fundamental image and the mask image in a frequency of the display device's refresh rate causing the rapidly displaced frames to merge into a continuous image, the net result being a featureless neutral gray image. That is, the row of tiles of fundamental images is followed by row of

tiles of corresponding mask images and the row of tiles of mask images can be followed by row of tiles of corresponding fundamental images in place in two consecutive frames of sequence.);

(d) image viewing means cooperatively polarized with said display regions of said image display device for allowing viewing only of said fundamental image component of said combined substantially featureless image (see paragraphs [0018]-[0021] and [0046]-[0048], e.g., a properly modulated optical shutter device 140 in Fig. 2).

Even though it's well-known that an image displace is comprised of a plurality of adjacent displace regions (e.g., tiles), the following is not explicitly taught in Yerazunis:

"(a) **an image display device comprising a plurality of adjacent display regions of different polarization states**;

(c) said image generating means and said image display device cooperatively communicating so that said fundamental image component is associated with at least one of said display regions having a polarization state different than that with which said inverse image component is associated" however Faris discloses how two spatially multiplexed images can have two different polarization states in an orthogonal relationship (see abstract, Figs. 1, 2, 2B, 4, 4B, 6, 6B, col. 4, lines 58-65, col. 6, lines 21-63, col. 7, lines 43-55, col. 9, lines 48-63, col. 15, line 20 through col. 16, line 67 and col. 18, line 30 through col. 19, line 33; The left perspective image and the right perspective image can be arranged to be fundamental image and the masking image or

inverse image such that each image is associated with a different polarization state from the other image, based on Fig. 1. The polarized viewing glasses can be modified such that both left eye and the right eye can detect one image based on the polarization state of the glasses in synchronization with the polarization state in the viewing device.)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the current invention was made, having the teachings of Yerazunis and Faris before him or her, to modify Yerazunis's scheme for privacy-enhanced displace device by including Faris's scheme for selecting the fundamental image based on the polarization states associated with the fundamental image and the masking image utilizing the a phase-retarding polarizer of the displace device and the viewing device of which the polarization state is in synchronization with a polarization state of the displace device. The suggestion/motivation for doing so would have been to select and view a desired image utilizing viewing glasses with its polarization state in synchronization with that of fundamental image being displayed on the display device such that unauthorized viewers without appropriate viewing glasses won't be able to view the fundamental images.

22. With respect to claim 23, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, the combination of Yerazunis and Faris teaches **wherein said plurality of display regions are arranged in alternating columns of different polarization states** (see discussion in the rejected claim 22; see Yerzunis, paragraph [0009]; Assuming that the tile of following or previous

neighboring row/column has similar pixel composition, its row/column tiles of its own mask images can be substituted, instead, in place of the next row/column of tiles of images. In the next frame, the location of fundamental images is fixed but the neighboring row/column can be arranged as described before.; Fi | Ii → I(i+1) | F(i+1) instead of Fi | I(i+1) → Ii | F(i+1).

23. With respect to claim 24, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, the combination of Yerazunis and Faris teaches **wherein said plurality of display regions are arranged in alternating rows of different polarization states** (see discussion in the rejected claim 23).

24. With respect to claim 25, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, Faris teaches **wherein said combined substantially featureless image is comprised of a plurality of said fundamental image components and corresponding inverse image components associated with alternating sets of said adjacent display regions having different polarization states** (see Faris, col. 8, lines 13-53).

25. With respect to claim 26, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, Faris teaches **wherein said**

different polarization states of said display regions are generally orthogonal to one another (see Faris, col. 18, lines 30-67).

26. With respect to claim 27, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, Faris teaches **wherein at least some of said display regions are left-hand circularly polarized and at least some of said display regions are right-hand circularly polarized** (see Faris, Fig. 4 and col. 8, lines 48-63 for LHS and RHS circular polarization states).

27. With respect to claim 28, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, the combination of Yerazunis and Faris teaches **wherein said plurality of display regions have fixed polarization states** (Each display region (e.g., row of tiles) is occupied by fundamental image components, then by masking image components and the polarization states are in orthogonal relationship. For the shake of the polarization states of viewing glasses being dynamic (i.e, changing from 90 degree to 0 degree to 90 degree), the polarization states of display regions can be fixed with one state such that the alternating fundamental and masking images can be associated with different polarization states at each refreshing of image.)

28. With respect to claim 29, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, the combination of Yerazunis and Faris teaches **wherein said plurality of display regions have variable polarization states** (In contrast to the polarization states of viewing glasses being dynamic (i.e, changing from 180 degree to 0 degree to 180 degree), the polarization states of display regions can be varied such that the alternating fundamental and masking images can be associated with identical polarization states in the viewing glasses at each refreshing of image.)

29. With respect to claim 30, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, the combination of Yerazunis and Faris teaches **wherein each of said display regions comprise an electrically variable polarizer** (see Yerazunis, paragraphs [0043] – [0048]).

30. With respect to claim 31, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, Yerazunis teaches **wherein said variable polarizer comprises a liquid crystal device capable of altering polarization state** (see Yerazunis, paragraph [0020] and the discussion in the rejected claim 12 for the LCD display).

31. With respect to claim 32, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, the combination of Yerazunis and Faris teaches **wherein said image display device constitutes an electronic display device having a plurality of display pixels, each of said display regions comprising at least one of said pixels of said electronic display device** (e.g., rows or columns of tiles as discussed in the rejected claim 22).

32. With respect to claim 33, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, the combination of Yerazunis and Faris **teaches wherein said fundamental image component is associated with at least one of said pixels having a common polarization state, and said corresponding inverse image component is associated with at least one of said pixels having a different polarization state (**see Yerzunis, paragraph [0009]; Assuming that the tile of following or previous neighboring row/column has similar pixel composition, its row/column tiles of its own mask images can be substituted, instead, in place of the next row/column of tiles of images. In the next frame, the location of fundamental images is fixed but the neighboring row/column can be arranged as described before.; Fi | Ii → I(i+1) | F(i+1) instead of Fi | I(i+1) → Ii | F(i+1); see Faris, col. 18, lines 30-67 for having different polarization states for the alternating rows/columns of composite image).

33. With respect to claim 34, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, Yerazunis teaches **wherein said electronic display device is configured as a liquid crystal display device, and each of said display regions includes an electrically controllable polarizer that is comprised of a liquid crystal device capable of altering polarization state based on applied voltage thereto** (see paragraphs [0018]-[0021] and [0044]-[0048]).

34. With respect to claim 35, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, Yerazunis teaches **means for generating an overlay image visible to the naked eye and appearing over said substantially featureless image on said electronic display device, said overlay image having an overlay image component which is associated with at least one of said display regions having a polarization state common to that with which said inverse image component is associated** (see Yerazunis, Fig. 2 and paragraph [0032], where the displayed image 261 is a overlay image when viewed without an appropriate optical viewing glasses.)

35. With respect to claim 36, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, Yerazunis teaches **wherein said electronic display device includes a transparent polarizing overlay extending over said display pixels, said polarizing overlay being constructed and arranged**

to alter the polarization state of some of said display pixels to generate said plurality of display regions of different polarization states (see Yerazunis, paragraphs [0020] and [0047] for the liquid crystal polarization rotator that can change the polarization states in a specific viewing areas.)

36. With respect to claim 37, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, Yerazunis teaches **wherein said image display device includes a transparent polarizing overlay constructed and arranged to generate said plurality of adjacent display regions of different polarization states** (see discussion in the rejected claim 36).

37. With respect to claim 38, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, Yerazunis teaches **wherein said fundamental image component is regenerated anew over time in association with a different said display region** (see discussion in the claim 22 for time-multiplexing two frames; Assuming that the tile of following or previous neighboring row/column has similar pixel composition, its row/column tiles of its own mask images can be substituted, instead, in place of the next row/column of tiles of images. In the next frame, the location of fundamental images is fixed but the neighboring row/column can be arranged as described before.; Fi | Ii → I(i+1) | F(i+1) instead of Fi | I(i+1) → Ii | F(i+1).)

38. With respect to claim 39, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, the combination of Yerazunis and Faris teaches **wherein said different display region has a polarization state different than that with which said fundamental image component was previously associated** (see Faris, col 16., lines 13-38 for the two images with different polarization states arranged in checkerboard, row-by-row or column-by-column pattern for spatial multiplexing and for selecting one of the two image types with the aid of optical visualizing eyeglasses.)

39. With respect to claim 40, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, the combination of Yerazunis and Faris teaches **wherein said corresponding fundamental and inverse image components switch associated display regions over time** (see discussion in the rejected claim 38).

40. With respect to claim 41, Yerazunis teaches a method for confidential viewing of a fundamental image utilizing spatial multiplexing image modification, comprising the steps of:

(b) displaying spatially multiplexed fundamental image components of a fundamental image with corresponding inverse image components thereof on said image display device in such arrangement as to neutralize and render said fundamental image components substantially invisible to the naked eye (see abstract, Figs. 1 and 2,

paragraphs [0009], [0015]-[0021], [0026], [0045]-[0047]; It's well-known to a person in the art that the display can be constructed as a tiled electronic display having image picture element (pixel) positions defined in association with a pixel image data stored in a memory, as discussed by Matties et al. in US PG-pub. 2005/0078104 A1). It's also well-known to a person in the art that any two images of the same size can be spatially multiplexed in a checker pattern or row-by-row pattern or column-by-column pattern to form a composite image utilizing the tile structure above such that when either of the two images are selected, the defects resulting from the missing tile of pixels are not detectable to a normal eye.; Yerazunis discloses the mask image 102 derived from the fundamental image 101 in Fig. 1 and paragraphs [0016] – [0017] and [0025] – [0028]. The fundamental image and the masking image can be arranged in a alternating column-by-column or row-by-row pattern utilizing the tile structure above. Yerazunis further mentions alternating the fundamental image and the mask image in a frequency of the display device's refresh rate causing the rapidly displaced frames to merge into a continuous image, the net result being a featureless neutral gray image. That is, the row of tiles of fundamental images is followed by row of tiles of corresponding mask images and the row of tiles of mask images can be followed by row of tiles of corresponding fundamental images in place in two consecutive frames of sequence.); and

(c) viewing said image display device through a polarized filtering means that communicates with said image display device and allows passage and viewing only of said fundamental image components of said fundamental image (see

paragraphs [0018]-[0021] and [0046]-[0048], e.g., a properly modulated optical shutter device 140 in Fig. 2).

Even though it's well-known that an image displace is comprised of a plurality of adjacent displace regions (e.g., tiles), the following is not explicitly taught in Yerazunis:

"(a) polarizing adjacently positioned display regions of an image display device with different states of polarization;

(b) whereby said fundamental image components are associated with said display regions having a state of polarization different than that with which said inverse image components are associated" however Faris discloses how two spatially multiplexed images can have two different polarization states in an orthogonal relationship (see abstract, Figs. 1, 2, 2B, 4, 4B, 6, 6B, col. 4, lines 58-65, col. 6, lines 21-63, col. 7, lines 43-55, col. 9, lines 48-63, col. 15, line 20 through col. 16, line 67 and col. 18, line 30 through col. 19, line 33; The left perspective image and the right perspective image can be arranged to be fundamental image and the masking image or inverse image such that each image is associated with a different polarization state from the other image, based on Fig. 1. The polarized viewing glasses can be modified such that both left eye and the right eye can detect one image based on the polarization state of the glasses in synchronization with the polarization state in the viewing device.)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the current invention was made, having the teachings of Yerazunis and Faris before him or her, to modify Yerazunis's scheme for privacy-enhanced displace device

by including Faris's scheme for selecting the fundamental image based on the polarization states associated with the fundamental image and the masking image utilizing the a phase-retarding polarizer of the displace device and the viewing device of which the polarization state is in synchronization with a polarization state of the displace device. The suggestion/motivation for doing so would have been to select and view a desired image utilizing viewing glasses with its polarization state in synchronization with that of fundamental image being displayed on the display device such that unauthorized viewers without appropriate viewing glasses won't be able to view the fundamental images.

41. With respect to claim 42, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, the combination of Yerazunis and Faris teaches **wherein said step of polarizing said adjacently positioned display regions of said image display device includes the use of at least one electrically variable polarizer capable of altering the state of polarization of at least one of said display regions relative to other said display regions** (see Yerazunis, paragraphs [0044]-[0047] and Faris, col. 15 line 55 through col. 16, line 38).

42. With respect to claim 43, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, the combination of Yerazunis and Faris teaches **wherein said step of polarizing said adjacently positioned**

display regions is carried out with at least one variable polarizer of liquid crystal construction capable of altering the state of polarization of at least one of said display regions relative to other said display regions based on applied voltage to said variable polarizer (see rejected claim 42 and see Yerazunis, paragraph [0047] for "the amount of rotation is substantially linearly proportional to the driving voltage.")

43. With respect to claim 44, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, the combination of Yerazunis and Faris teaches **wherein said step of polarizing said adjacently positioned display regions of said image display device includes positioning a polarizing device having separate areas of differently fixed polarization states in alignment with said display regions of said image display device** (see Faris, Fig. 1 and col. 15, line 55 through col. 16, line 12 for a phase-retarding micro-polarization panel 12 for encoding left and right perspective image pixels over left and right visual channels using orthogonally different polarization states P1 and P2, respectively.)

44. With respect to claim 45, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, Yerazunis teaches **wherein said step of displaying spatially multiplexed image components includes varying over time the polarization state of said display regions with which said**

fundamental image components are associated (see Yerazunis, paragraphs [0043] – [0048]))

45. With respect to claim 46, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, the combination of Yerazunis and Faris teaches **wherein said step of displaying spatially multiplexed image components includes periodically alternating said display positions of said fundamental image components and said corresponding inverse image components to appear at differently polarized sets of said display regions of said image display device** (see Faris, col. 18, lines 13-38 for spatially multiplexing the two types of images (e.g., fundamental image and the inverse/masking image) in a row-by-row, column-by-column, or checker pattern; Per Yerazunis, paragraphs [0015]-[0018], the row of tiles of fundamental images is followed by row of tiles of corresponding mask images and the row of tiles of mask images can be followed by row of tiles of corresponding fundamental images in place in two consecutive frames of sequence.; Assuming that the tile of following or previous neighboring row/column has similar pixel composition, the following/previous neighboring row/column tiles of mask images can be substituted, instead.; see Faris, col. 15, line 55 through col. 16, line 13 for the two images having two different polarization states in orthogonal relationship.)

46. With respect to claim 47, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, the combination of Yerazunis and Faris teaches **wherein said step of polarizing adjacently positioned display regions of said image display device includes arranging said display regions to alternate spatially between two states of polarization which are generally orthogonal to one another** (see discussion in the rejected claim 41 for various alternating arrangement of display regions and two types of image pixels having different polarization states).

47. With respect to claim 48, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, the combination of Yerazunis and Faris teaches **wherein said step of displaying spatially multiplexed image components includes displaying overlay image components representative of a separate overlay image on said image display device, whereby said overlay image components are associated with at least some of said display regions having a polarization state common to that with which said inverse image components are associated** (see Yerazunis, Fig. 2 and paragraph [0032], where the displayed image 261 is a overlay image when viewed without an appropriate optical viewing glasses.)

48. With respect to claim 49, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, Yerazunis teaches **wherein**

said step of viewing said image display device utilizes passive polarized eyewear to allow passage and viewing only of said fundamental image components of said fundamental image (see Yerazunis, paragraphs [0046] – [0048] for the optical shutter device in sync with the images of the display device).

49. With respect to claim 50, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, Yerazunis teaches **wherein said step of viewing said image display device utilizes active polarized eyewear operating in sync with said image display device to allow passage and viewing only of said fundamental image components of said fundamental image** (see Yerazunis, paragraphs [0046]-[0048], [0018]-[0021]).

50. With respect to claim 51, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, Yerazunis teaches **wherein said step of polarizing adjacently positioned display regions with different states of polarization includes the use of right-hand and left-hand circular polarization** (see Faris, Fig. 4 and col. 8, lines 48-63 for LHS and RHS circular polarization states).

51. With respect to claim 52, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, Yerazunis **teaches wherein**

said step of displaying fundamental and corresponding inverse image components on said image display device generates a combined substantially featureless image to the naked eye (see discussion in the rejected claim 41).

52. With respect to claim 53, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, Yerazunis **teaches including the step of periodically exchanging the display position of said fundamental and corresponding inverse image components, while coincidentally altering the polarization state of said display regions associated therewith so as to maintain a common polarization state over time for all said display regions associated with said fundamental image components being displayed** (In contrast to the polarization states of viewing glasses being dynamic (i.e, changing from 180 degree to 0 degree to 180 degree), the polarization states of display regions can be varied such that the alternating fundamental and masking images can be associated with identical polarization states in the viewing glasses at each refreshing of image.)

53. With respect to claim 54, Yerazunis teaches a method for confidential viewing of a fundamental image utilizing spatial multiplexing image modification, comprising the steps of:

(b) producing a compound image on said display device that is comprised of a plurality of spatially multiplexed fundamental image components and masking

image components aligned with said polarizers of said overlay, whereby said fundamental image components are representative of a fundamental image and said masking image components are derived from said fundamental image components (see abstract, Figs. 1 and 2, paragraphs [0009], [0015]-[0021], [0026], [0045]-[0047]; It's well-known to a person in the art that the display can be constructed as a tiled electronic display having image picture element (pixel) positions defined in association with a pixel image data stored in a memory, as discussed by Matties et al. in US PG-pub. 2005/0078104 A1). It's also well-known to a person in the art that any two images of the same size can be spatially multiplexed in a checker pattern or row-by-row pattern or column-by-column pattern to form a composite image utilizing the tile structure above such that when either of the two images are selected, the defects resulting from the missing tile of pixels are not detectable to a normal eye.; Yerazunis discloses the mask image 102 derived from the fundamental image 101 in Fig. 1 and paragraphs [0016] – [0017] and [0025] – [0028]. The fundamental image and the masking image can be arranged in a alternating column-by-column or row-by-row pattern utilizing the tile structure above. Yerazunis further mentions alternating the fundamental image and the mask image in a frequency of the display device's refresh rate causing the rapidly displaced frames to merge into a continuous image, the net result being a featureless neutral gray image. That is, the row of tiles of fundamental images is followed by row of tiles of corresponding mask images and the row of tiles of mask images can be followed by row of tiles of corresponding fundamental images in place in two consecutive frames of sequence.);

(c) viewing said compound image through said overlay utilizing a lens filter polarized in such manner as to allow passage and viewing only of said fundamental image components of said fundamental image (see paragraphs [0018]-[0021] and [0046]-[0048], e.g., a properly modulated optical shutter device 140 in Fig. 2).

Even though it's well-known that an image displace is comprised of a plurality of adjacent displace regions (e.g., tiles), the following is not explicitly taught in Yerazunis:

"(a) positioning a transparent polarizing overlay over an image display device, said overlay comprising a plurality of adjacently positioned polarizers having different polarization states;

(b) said fundamental image components being aligned with a group of said polarizers having a common state of polarization different from that with which said masking image components are aligned" however Faris discloses how two spatially multiplexed images can have two different polarization states in an orthogonal relationship (see abstract, Figs. 1, 2, 2B, 4, 4B, 6, 6B, col. 4, lines 58-65, col. 6, lines 21-63, col. 7, lines 43-55, col. 9, lines 48-63, col. 15, line 20 through col. 16, line 67 and col. 18, line 30 through col. 19, line 33; The left perspective image and the right perspective image can be arranged to be fundamental image and the masking image or inverse image such that each image is associated with a different polarization state from the other image, based on Fig. 1. The polarized viewing glasses can be modified such

that both left eye and the right eye can detect one image based on the polarization state of the glasses in synchronization with the polarization state in the viewing device.)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the current invention was made, having the teachings of Yerazunis and Faris before him or her, to modify Yerazunis's scheme for privacy-enhanced displace device by including Faris's scheme for selecting the fundamental image based on the polarization states associated with the fundamental image and the masking image utilizing the a phase-retarding polarizer of the displace device and the viewing device of which the polarization state is in synchronization with a polarization state of the displace device. The suggestion/motivation for doing so would have been to select and view a desired image utilizing viewing glasses with its polarization state in synchronization with that of fundamental image being displayed on the display device such that unauthorized viewers without appropriate viewing glasses won't be able to view the fundamental images.

54. With respect to claim 55, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, Yerazunis teaches **including the step of time multiplexing said fundamental and masking image components with derived inverse image components thereof** (see discussion in the rejected

claim 54 in association with Yerazunis for rendering the composite images from a sequence of frame images unrecognizable by time-multiplexing the images).

55. With respect to claim 56, the combination of Yerazunis and Faris teaches the claimed invention as described above and furthermore, Yerazunis teaches **wherein said step of viewing said compound image utilizes an active lens filter capable of altering its state of polarization to match that of said fundamental image components** (see Yerazunis, paragraphs [0018]-[0022] and [0045]-[0048]).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references are Lazzaro et al. (US Patent No. 6,456,432 B1); Matthies et al. (US PG-Pub. 2005/0078104 A1); Ellwood, Jr. (US PG-Pub 2005/0185887 A1); Coteus et al. (US Patent No. 5,614,920); Yabuta et al. (US PG-Pub. 2007/0146578 A1).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HEE SONG whose telephone number is (571)270-3260. The examiner can normally be reached on Mon - Fri, 7:30 AM - 5:00 PM.
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nasser Moazzami can be reached on 571-272-4196. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

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